

precipitous sides. Several perched blocks stand on the mountain-sides about, but as I did not visit these, I cannot say whether they may not have simply come from the heights above, though their precarious positions would indicate not.

Outside Rock Island is another area of even, sandy, and muddy bottom, in from 10 to 6 fathoms water, with a steep edge to the deep water of the Strait, similar to that at the head of Havergal Bay. This, I take it, must have been formed by the glacier stream, and was once its delta when the land was higher.

A sandy flat, mixed with rounded stones, now surrounds the glacier stream where it falls into Glacier Bay, and only wants a subsidence of the land to convert it into a counterpart of Havergal Bay. I do not know how else to account for this flat outside Glacier Bay, which was as unexpected as it was welcome, since it forms one of the best anchorages in the Straits, where even bottoms for the anchors are at a premium.

#### *Northbrook Glacier*

A snow-field in King William's Land between Northbrook Sound and Beaufort Bay is the largest in these parts, but I do not know much of it. It lay unfortunately just outside my work, and was so uniformly covered with clouds that I only saw the summit once.

It has probably an area of from fifty to seventy square miles. It is a flattish mountain about 4500 feet high. The ice descends on all sides in a succession of ice-falls, exhibiting lines of blue ice, most beautiful to see, about two or three miles long. Only when within 800 or 1000 feet of the sea is a true glacier formed.

These glaciers at the head of Northbrook Sound reach to within 100 feet or so of the shore level. In Beaufort Bay I rather think they reach the water. In Northbrook Sound the glacier at a mile from the coast, is about a mile and a half wide, but it is shortly after broken by a protruding hill, and divides into two legs, each half a mile wide. This glacier was also much shrunken. It brings down no moraine, and flows over solid rock.

W. J. L. WHARTON

#### NOTES

THE Council of the Mathematical Society have awarded the first De Morgan Gold Medal to Prof. Cayley, F.R.S.

M. PASTEUR has been awarded a gold medal by the Société Centrale pour l'Amélioration des Races des Chiens for his work on rabies.

THE jury of the International Horticultural Exhibition at St. Petersburg have awarded a gold medal to Dr. Regel, Director of the St. Petersburg Botanical Garden. The other awards for scientific work were to Dr. Gobi, the Russian algologist, for his remarkable herbarium; to Mr. Hartnack, for his microscope; and to Countess Zichi for her picture representing the *Serapias*. A gold medal was awarded to the Japanese University of Tokio for its collection of fruits.

M. JAMIN has been elected Perpetual Secretary in the Section of Physical Sciences of the Paris Academy in succession to the late M. Dumas.

DR. ADAM PAULSEN has been appointed Director of the Danish Meteorological Institute in succession to the late Dr. Hoffmeyer. Dr. Paulsen was the Chief of the Danish Polar Expedition to Godthaab.

PROF. W. GRYLLS ADAMS, as President of the Society of Telegraph Engineers and Electricians, will hold a *conversazione* in the Museum, Physical Laboratory, and Art Galleries of King's College on Thursday evening, July 3, from nine to twelve o'clock.

By invitation of the Executive Council of the International Health Exhibition, a conference of the Society of Telegraph Engineers and Electricians will be held in the Conference Room of the Exhibition, South Kensington, on Friday, July 4. The chair will be taken by Prof. W. Grylls Adams, F.R.S., President of the Society, at 11 o'clock a.m., when the following paper will be read and discussed: "On Electric Lighting in Relation to Health," by R. E. Crompton, member. An adjournment for luncheon will take place at 1.30, and at 2.30 the following paper will be read and discussed, viz.: "The Physiological Bearing of Electricity on Health," by W. H. Stone, M.A., M.B. Oxon, F.R.C.P., member.

A LARGE number of guests, including ladies, assembled by invitation of the President of the Royal Society at a *conversazione* held at Burlington House on Wednesday last week.

ARRANGEMENTS have been made by the Council of the Scottish Meteorological Society for the completion this season of the Observatory of Ben Nevis. The first portion of the Observatory was, it may be remembered, opened in October last, and since the observers went into residence continuous hourly observations have been made of the conditions of the atmosphere at the top of the Ben, with special reference to temperature, pressure, humidity, and motion. From the discussion of these, and what were daily made by Mr. Clement L. Wragge in the summers of 1881 and 1882, by the Secretary, Mr. Buchan, the Council have been fully confirmed in the high expectations they had formed concerning the value of a high-level station, both in its bearing upon general meteorological problems, and also with reference to possible forecasts for the British Islands. The problem, however, is great and many-sided, and is one which can only be solved after much patient investigation and labour. The additions to be made to the Observatory will just double its size, and enable the three observers—who during the winter have been considerably cramped in their one apartment—to work under more comfortable conditions. On the south of the present doorway there is to be erected a shelter for tourists. On the north side of the existing building there is to be erected a new sitting room or office, 15 feet by 13 feet, while off this apartment there will be two bed-rooms, each 9 feet by 7 feet. The office will be lighted by two windows; and in each bed-room there will be one window. Opening from the east side of the office is a short passage leading to an octagonal tower, the walls of which will be 6 feet in thickness, and its internal diameter 8 feet. The tower, which will be 25 feet high, will be divided into three apartments, the lower being a dark chamber for photographic purposes, the centre one a spare room, and the upper a depository for observing instruments. The stonework of the tower is carried up to the height of the ceiling of the second chamber. The upper room is a superimposed wooden cabinet, the exposed parts of which are covered with lead. The floor of this apartment is carried out over the stone walls and firmly fixed to the tower below by iron rods, and to the roof above by strong wooden braces, so that it cannot possibly be upset. In the upper chamber are four windows, one facing each of the cardinal points of the compass, and at one of these is a ladder leading down to the roof, so that, should the doorway be blocked by snow, this would form a means of exit for the observers; the ventilating and smoke pipes, which are contained in one casing, are carried up through the roof of the tower, while, rising 6 feet above the ventilator, will be two anemometers, specially constructed by Profs. Chrystal and Crum Brown, for continuously recording the direction and velocity of the wind. These instruments will be self-registering, the apparatus for this purpose being in the chamber below, where it will be accessible at all times. On the eastern face of the tower a door has been left, so as to provide for future extension for magnetic and seismic observations. The estimated cost of the

completion of the Observatory in the manner now explained will be 800*l.*, which is, however, irrespective of a heavy item of charge for conveying on horseback the materials to the top of the hill. It is understood that the cost of equipment and maintenance of the Observatory heretofore has been heavier than was anticipated. The directors intend shortly to make a fresh appeal for funds to the public, which will no doubt be as liberally responded to as was their last.

THE first annual conference of the National Association of Science and Art Teachers will be held in the Liverpool Institute, Mount Street, Liverpool, at half-past two on Saturday, June 21. Prof. Silvanus P. Thompson, D.Sc., will preside. The following arrangements have been made for the day's proceedings:—Meeting in the vestibule of the Free Museum, William Brown Street, at 10.30 a.m. The members and delegates will view the museum, library, and art gallery. At 12.5, train to Bootle from L. and Y. station, for Alexandra Dock, to view the National Liner *America*. Return per train to Liverpool, for refreshments and inspection of Liverpool Institute and School of Art. Business meeting at 2.30 p.m. Paper by Prof. Thompson at 7 p.m.

PROF. STRICKER of Vienna has in the press a work on which he has been engaged for some time. Under the title "*Physiologie des Rechts*" he has applied modern scientific methods to the investigation of ethical problems. The aim of the book is to examine the correlative conceptions of right and law in the light which is cast on them by the conceptions of development and of society as something more than a mechanical aggregate of independent units. The first part of the inquiry is psychological. The second treats of the relations of ethics to jurisprudence, dealing with the question of connection of right with might as part of the general problem of evolution. The third discusses the question of punishment and responsibility. The book is to be published by Toeplitz and Deuticke of Vienna.

WE have on several occasions drawn attention to the good work which is being done by the Royal Victoria Coffee Hall, Waterloo Bridge Road. The entertainments provided are healthy, instructive, and popular; among other items in the programme are lectures by some of our best known men of science. The undertaking is in want of funds to further extend operations, and those willing to contribute to a really good cause should communicate with Miss Cons at the Hall.

THE death is announced of the eminent scientific geographer, Dr. G. von Boguslawski; his "*Handbuch der Oceanographie*" has only just been published.

TORTOISES and snakes are intimately associated together in Chinese mythology and records of natural history, and hence one of the commonest emblems current in China, and a very favourite ornament, is a tortoise encircled by a snake. During the Chow Dynasty (B.C. 1122-255) these animals were chosen as emblems of martial security against attack, from the defences which nature has given them in the shell of the one and the scales of the other, and to the present day flags bearing a device in which they both appear as emblematic of this idea are usually carried by troops in the field. But it is further commonly stated as a fact that the greatest affection exists between these two creatures. Is there any ground for this last assertion? A passage in a letter lately published in the *China Mail* from a correspondent in Shanse seems to give a certain colour of probability to it. He says that one evening as he was walking on the bank of a certain river he saw a tortoise swimming across the current. Having his rifle with him he fired at the creature, upon which the tortoise dived under water, and a snake, cut in two by his bullet, floated on the surface. From the writer's account the snake appears to have been crossing the river on the back of the tortoise.

WE trust that the effort being made by the Sunday Society to obtain the opening of the Health Exhibition on Sundays will be successful. In the memorial of the Society to H.R.H. the Prince of Wales and the Executive Council of the International Health Exhibition, a letter is given from Sir Joseph Hooker to Prof. Tyndall, in which the former insists strongly on the beneficial results to the working-classes of the opening of Kew Gardens on Sunday. In this letter Sir Joseph Hooker says:—"If there is one matter that gratifies me more than another in respect of the administration of the Kew Gardens and Museums by the Government, it is the opening them to the public on Sundays. On no day of the week have we more interested visitors or more of that class which we should wish to see profiting by the instructive contents of this Institution. The Museums especially are crowded, and when it is considered that the exhibits in them are not of articles that strike the eye or gratify the senses of colour or form, the interest they excite is almost to be wondered at. The artisan classes are great frequenters of these Museums with their wives and families, and it is pleasing to see the delight with which the children recognise such articles as the sugar-cane, the coffee-plant, and its products, and the various implements used in their preparation, manufacture, &c. I should add that this interest in the instructive character of the Gardens is largely on the increase, and is manifest to the most careless observer. It is further accompanied by a marked improvement in the conduct of certain classes which were formerly troublesome in many ways and a nuisance to quiet visitors. It speaks volumes for the moral effect of the Sunday opening when I add that such classes no longer exist at Kew. Whether it is that such no longer come, or that coming they now behave themselves, is immaterial: the moral gain is great. During the last two years we have had in each year a million and a quarter of visitors, of whom the greater proportion are Sunday afternoon arrivals from every quarter of the Metropolis and its surroundings. Let the numbers speak for themselves:—1882, Sunday visitors, 606,935; week-days, 637,232; 1883, Sundays, 616,307; week-days, 624,182." Equally beneficial results, we are convinced, would follow the opening of the Health Exhibition on Sundays.

THE World's Industrial and Cotton Centennial Exposition, sanctioned by an Act of Congress of February 1883, and to be opened at New Orleans, December 1, proposes to bring together a magnificent international collection of plants and shrubs, in the largest conservatory ever erected, 600 feet in length, 194 feet in centre, with glass tower 90 feet in height, where Mexico and Central America will be the principal exhibitors. Six lakes will be contained in the grounds, round which will be groves of cedar, pine, pomegranate, magnolia, lemon, palm, orange, cocoa-nut, banana, &c. But the United States Bureau of Education in a preliminary circular calls attention to the very large and varied collection which will be found there of educational appliances of every description; plans of schools and methods of teaching all classes of scholars from the deaf and dumb or imbecile to the technical or university student; books in all their parts and stages; stationery, and materials for drawing, extending to photography; maps; instruments and apparatus mathematical, medical, and musical. The Bureau gives the managers of the Exposition credit for considering the improvement of schools as among the most beneficial results to be gained by their efforts.

THE Presidency of the Social Science Association for the ensuing year has been accepted by Mr. G. J. Shaw-Lefevre, M.P., First Commissioner of Works. The preparations for the Annual Congress, which is to take place at Birmingham from September 17 to 24, are being vigorously pushed forward by the different Local Committees, and a largely attended and success-



ful meeting is anticipated. It is sixteen years since the Association met for the second time in Birmingham, and twenty-seven years since it held, in 1857, its first meeting, which also took place in that town.

WE learn from a communication of Dr. Glasenap to the Russian newspapers that there are in Russia the following private observatories: at Pervin, near Torjok, in the Government of Tver, belonging to General Maievsky; at Bunakovka, in the Government of Kharkoff, belonging to Prince Liven; and at Odessa, belonging to M. Gildesheim. A Polish gentleman, M. Wuczihowski, is building a private observatory at Belkave, near Breslau; and a Russian gentleman, W. P. Engelhardt, has a fine observatory at Dresden. The last is provided with an equatorial which has a 12-inch refractor, and is one of the most perfect telescopes. The equatorial is provided also with a 4-inch telescope with a large spectroscope. There is also a 6-inch searcher for comets, with a wide field of sight, and a selection of the best physical instruments.

THE Rev. John Stevenson is preparing for publication, by subscription, through Messrs. Blackwood and Co., a "Flora of British Fungi (Hymenomycetes)," with illustrations by Worthington G. Smith, F.L.S. The author states that he has the co-operation of the most eminent mycologists. It may be added that the value of the "Flora" will be greatly enhanced by embodying the views of Fries, contained in his "Monographia Hymenomycetum Sueciæ," a work which cannot now be obtained, only 100 copies having been originally printed. The issue of the work will depend on a sufficient number of subscribers being received by an early date, in which case the first volume will be published without delay.

A GENERAL meeting of the Mineralogical Society will be held in the library, Museum of Science and Art, Edinburgh, on Tuesday, June 24, at 12 o'clock noon. The following papers will be read:—Forms of silica, by John Ruskin, D.C.L., Slade Professor at Oxford (communicated by the Local Secretary for Scotland); application of the periodic law to mineralogy, by Thomas Carnelley, D.Sc., F.C.S., Professor of Chemistry, Univ. Coll. Dundee (communicated as above); the origin of the andalusite schists of Aberdeenshire, by John Horne, F.R.S.E., H.M. Geol. Survey; on the occurrence of prehnite and other zeolites in the rocks of Samson's Ribs and Salisbury Crags, by Andrew Taylor, F.C.S., A.G.S.E. (communicated as above); on a new locality for zoisite, by W. Hamilton Bell, F.G.S.E. (communicated as above); on diatomaceous deposits in Scotland, by Prof. W. I. Macadam, F.C.S., Hon. Sec. G.S.E.; notes on the albertite beds of Strathpeffer, Ross-shire, by William Morrison, M.A., Academy, Dingwall (communicated as above); kyanite localities in the north, and staurolite from Presholme, Enzie, Banffshire, by Thomas Wallace, High School, Inverness; the crystallography of bournonite, by H. A. Miers, B.A., British Museum, Nat. Hist. Dept.; notes on the metallic veins of the Upper Hartz, Germany, by H. M. Cadell, B.Sc., H.M. Geol. Survey (communicated as above); Scottish localities for actinolite, by Rev. W. W. Peyton; on a peculiar development of crystals of tourmaline from Lockport, N.Y. County, U.S., by R. H. Solly, F.G.S.

FATHER DENZA, Director of the Meteorological Observatory of the Turin Exhibition, is taking steps for organising observations on board the Godard captive balloon, which ascends to an altitude of from 200 m. to 300 m. The principal scientific features of the Turin Exhibition are:—(1) The collection exhibited by Prof. Sylvestri, Director of the Etna Observatory, and containing a number of specimens of amber collected on this mountain. (2) The methods employed by M. de Rossi, head of the newly-created Seismographic Service for issuing warnings of earthquakes and describing the observed

phenomena. M. de Rossi has issued a catalogue of 200 pages octavo describing the principal objects exhibited, the instruments tried, the methods adopted, and the results arrived at. (3) An historical Borgho, exhibiting mediæval costumes, buildings, instruments, furniture, and methods of working. A number of people of both sexes wearing the costumes attend to this part of the Exhibition.

THREE Ministers inaugurated in state, on June 14, the National Exhibition of Rouen, which will be international for electrical purposes. In the official speeches allusion was made to the Universal Commemorative Exhibition which is to be held in Paris in 1889. The site selected is the celebrated Park of St. Cloud, and a Crystal Palace is to be built on the ruins of the old Imperial palace.

UNDER the auspices of the Norwegian Association for the Promotion of Fisheries an establishment for the hatching of cod and soles' ova has been prepared near Arendal in the Christiania Fjord. From the excellent results already obtained it has been decided to found another hatching station near Christiania.

A LARGE copper basin consisting of small pieces riveted together and several wooden kegs containing "bog butter" were recently found at a depth of 7 feet in a peat-moss, Kylealsin, Skye. The kegs are each hollowed out of a solid block of wood, and show traces of burning all over the surface. The largest measures 1 foot 7 inches in height and 3 feet 6 inches in circumference.

THE additions to the Zoological Society's Gardens during the past week include a Vervet Monkey (*Cercopithecus lalandi* ♂) from South Africa, presented by Mr. J. Bulteel; a Bonnet Monkey (*Macacus sinicus* ♀), a Macaque Monkey (*Macacus cynomolgus* ♂) from India, presented by the Committee of the Latimer Road Mission; two Black-eared Marmosets (*Hapale penicillata* ♂♂) from South-East Brazil, presented by Mr. J. H. Bentley; two Vulpine Phalangiers (*Phalangis a vulpina*) from Australia, presented respectively by Mr. McClellan and Mr. Jay; a Marsh Ichneumon (*Herpestes galera*) from South Africa, presented by Mrs. Frank; two Angolan Vultures (*Cypohierax angolensis*), a White-necked Stork (*Ciconia episcopus*), an African Tantalus (*Pseudotantalus ibis*) from West Africa, presented by Mr. Thomas J. Alldridge; a Spur-winged Goose (*Plectropterus gambensis*) from West Africa, presented by Mr. J. B. Elliott; two Mute Swans (*Cygnus olor*), European, presented by Mr. H. Welch Thornton; two Angulated Tortoises (*Chersina angulata*) from North Damara Land, presented by Mr. F. R. Hemming; a Slow-worm (*Anguis fragilis*), a Common Viper (*Vipera berus*), British, presented by Mr. T. E. Gunn; a Bonnet Monkey (*Macacus sinicus* ♂) from India, four Muscovy Ducks (*Cairina moschata*), five Royal Pythons (*Python regius*) from West Africa, deposited; an Echidna (*Echidna hystrix*), a Brush Turkey (*Tallegala lathamii*) from New South Wales, two Red-cheeked Colys (*Colius erythromelon*) from South Africa, four Bronze-winged Pigeons (*Phaps chalcoptera* ♂♂♀♀) from Australia, a Great-billed Parrakeet (*Tanygnathus megalorhynchus*) from Ceram, a Mealy Amazon (*Chrysotis farinosa*) from South America, four White Storks (*Ciconia alba*), European, a Kingfisher (*Alcedo ispida*), British, purchased; a Collared Fruit Bat (*Cynonycteris collaris*), a Japanese Deer (*Cervus sika* ♀), six Chiloe Wigeons (*Mareca chilensis*), four Chinese Blue Magpies (*Cyanopollus cyaneus*), bred in the Gardens.

#### OUR ASTRONOMICAL COLUMN

RECENT IMPROVEMENTS IN ASTRONOMICAL INSTRUMENTS. —Acting under the directions of the Secretary of the Navy, Prof. Newcomb last year visited the principal Observatories on the continent of Europe for the purpose of collecting information relating to the most recent improvements in astronomical